# Green Propellant Thruster Technology Qualification (GPTTQ)

Completed Technology Project (2015 - 2018)

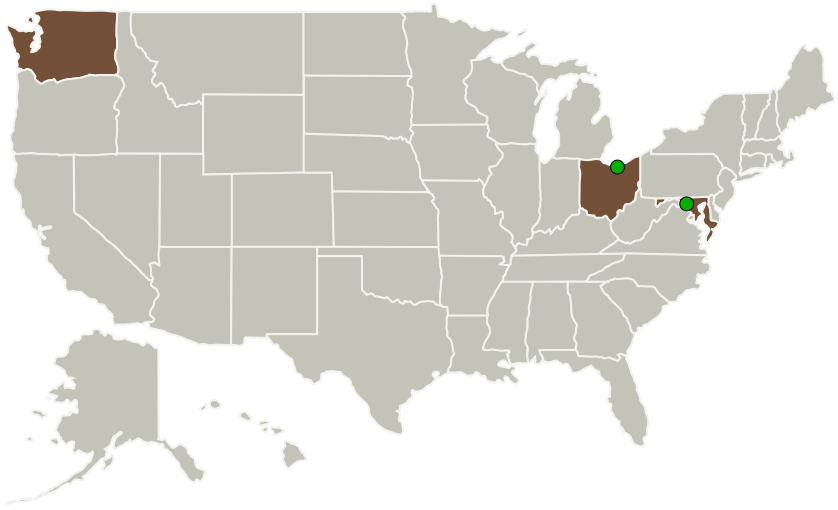
## Project Introduction

Development and flight qualification of a 1N AF-M315E thruster. The projects aims to conduct initial heavyweight GR-1 testing to optimize the injector design and the catalyst bed chamber diameter; complete design modifications and manufacture the GR-1A thruster; conduct qualification testing on the GR-1A flight like thruster.

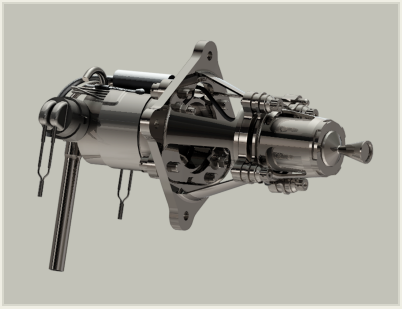
## Anticipated Benefits

The project's benefits will improve existing US green propulsion technologies.

## Primary U.S. Work Locations and Key Partners



| Organizations Performing Work | Role | Type | Location |
|---|---|---|---|
| Aerojet Rocketdyne Holdings, Inc. | Lead Organization | Industry | El Segundo, California |
| Glenn Research Center(GRC) | Supporting Organization | NASA Center | Cleveland, Ohio |
| Goddard Space Flight Center(GSFC) | Supporting Organization | NASA Center | Greenbelt, Maryland |



GR-1 thruster. This project will revise the 1N thruster design to implement design improvements that were uncovered during the Space Technology Mission Directorate (STMD) Green Propellant Infusion Mission (GPIM) project. The GR-1…

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| Primary U.S. Work Locations | |
|---|---|
| Maryland | Ohio |
| Washington | |

## Project Transitions

**October 2015:** Project Start

**September 2018:** Closed out

**Closeout Summary:** Due to the continued delays with Aerojet delivery (throug h 2018), GRC determined it could no support the planned Aeroject testing. The Center made the decision to drop the readiness level of the facility (it has been on standby). The Center also determined that restarting the facility for a short t est such as the 1N activities is ineffective and would not be pursued.

## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Organization:**

Aerojet Rocketdyne Holdings, Inc.

**Responsible Program:**

Technology Demonstration Missions

## Project Management

**Program Director:**

Trudy F Kortes

**Program Manager:**

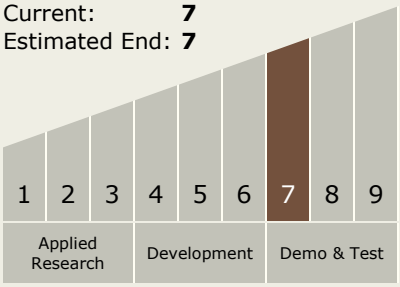
Tawnya P Laughinghouse

**Principal Investigator:**

Ronald A Spores

## Technology Maturity (TRL)

Start: **7**
Current: **7**
Estimated End: **7**



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## Images

**GR-1 Aerojet Rocketdyne Glenn Goddard (ARGG) Collaboration.png**
GR-1 thruster. This project will revise the 1N thruster design to implement design improvements that were uncovered during the Space Technology Mission Directorate (STMD) Green Propellant Infusion Mission (GPIM) project. The GR-1 thruster is the first design iteration from the GPIM effort. This project will focus on potential improvements for manufacturability, cost, and overall competitiveness that were uncovered throughout the GPIM thruster design and manufacturing process. Aerojet will partner with the NASA Glenn Research Center and the NASA Goddard Space Flight Center on this effort.
*(https://techport.nasa.gov/image/100846)*

## Project Website:

https://www.nasa.gov/mission_pages/tdm/main/index.html#.VQb6XUjJzyE

## Technology Areas

**Primary:**

- TX01 Propulsion Systems
  - TX01.1 Chemical Space Propulsion
    - TX01.1.2 Earth Storable

## Target Destinations

The Moon, Mars

## Supported Mission Type

Push